COG-2-0979.02.US

June 7, 2005



IE UNITED STATES PATENT AND TRADEMARK OFFICE

Our File:

Date:

In the **PATENT APPLICATION** of:

Sugar et al.

Application No.: 10/800,610

Confirmation No.: 1801

Filed:

March 15, 2004

For: SYSTEM AND METHOD FOR ANTENNA DIVERSITY USING EQUAL POWER JOINT MAXIMAL RATIO

COMBINING

Group:

2685

Examiner:

Not Yet Known

SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT

Mail Stop Amendment Commissioner for Patents P.O. Box 1450 Alexandria, VA 22313-1450

Sir:

Further to Applicants' Duty of Disclosure pursuant to 37 C.F.R. §1.56, Applicants wish to bring to the Examiner's attention the material cited on the enclosed PTO-1449 form. Newly cited documents are indicated by an asterisk (*). Copies of the newly cited documents are enclosed.

Pursuant to 37 C.F.R. §1.98(a)(2)(ii), copies of the cited U.S. publications and/or patent documents have not been included. Copies of previously cited documents are also not included.

Applicant: Sugar et al. Application No.: 10/800,610

It is respectfully requested that the Examiner consider these documents and return an initialed copy of the PTO-1449 form indicating his consideration of the cited materials.

Respectfully submitted,

Sugar et al.

 $\mathbf{R}\mathbf{v}$

Anthony L. Venezia Registration No. 48,382

(215) 568-6400

Volpe and Koenig, P.C. United Plaza, Suite 1600 30 South 17th Street Philadelphia, PA 19103

ALV/ks Enclosures (3)

SERIAL NO. FORM PTO-1449 ATTY, DOCKET NO. COG-2-0979.02.US 10/800,610 S. DEPARTMENT OF COMMERCE TENT AND TRADEMARK OFFICE **APPLICANT** Sugar et al. INFORMATION DISCLOSURE TATEMENT BY APPLICANT **GROUP** FILING DATE 2685 March 15, 2004 (Use several sheets if necessary) U.S. PATENT DOCUMENTS FILING DATE IF APPROPRIATE EXAMINER DOCUMENT NUMBER SUBCLASS DATE NAME CLASS INITIAL * 4,121,221 10/1978 Meadows Yamamoto 4,599,734 07/1986 Winters 01/1987 4,639,914 5,274,844 12/1993 Harrison et al. 02/1995 Weerackody 5,394,435 5,437,055 07/1995 Wheatley, III Osawa et al. 5,457,808 10/1995 Diepstraten 5,491,723 02/1996 02/1996 Tsujimoto 5,493,307 5,507,035 04/1996 Bantz et al. 07/1999 Weinstein et al. 5,539,832 Baker et al. 5,570,366 10/1996 Wheatley, III 5,577,265 11/1996 03/1997 Gans et al. 5,610,617 5,752,173 05/1998 Tsujimoto 5,761,193 06/1998 Derango et al. 5,761,237 06/1998 Petersen et al. 09/1998 Cheung et al. 5,812,531 5,848,105 12/1998 Gardner et al. Brederveld et al. 04/1999 5,898,679 06/1999 Warren et al. 5,912,921 5,930,248 07/1999 Langlet et al. Vook et al. 5,982,327 11/1999 6,008,760 12/1999 Shattil 02/2002 Myers Jr. 6,023,625 Parish et al. 6,037,898 03/2000 6,038,272 03/2000 Golden 03/2000 6,044,120 Bar-David et al. DATE CONSIDERED **EXAMINER**

		FORM PTO-1449		ATTY. DOCKET NO. COG-2-0979.02.US		SERIAL N 10/800,6	
U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE			APPLICANT Sugar et al.				
	ST	ORMATION DISCLOSURE ATEMENT BY APPLICANT several sheets if necessary		FILING DATE March 15, 2004		GROUI 2685	P
			<u> </u>	DOCUMENTS			
EXAMINER					T		FILING DATE IF
INITIAL		6,058,105	05/2000	NAME Hochwald et al.	CLASS	SUBCLASS	APPROPRIATE
	*	6,091,934	07/2000	Berman et al.			
		6,097,771	08/2000	Foschini			
	*		09/2000	Kermani			
		6,118,788		Liu et al.			
		6,122,260	09/2000				
		6,124,824	09/2000	Xu et al.		ļ	
	*	6,141,393	10/2000	Thomas et al.			
	*	6,141,567	10/2000	Youssefmir et al.		ļ	
		6,144,651	11/2000	Rinchiuso et al.			
		6,144,711	11/2000	Raleigh et al.			
		6,147,985	11/2000	Bar-David et al.			
		6,157,340	12/2000	Xu et al.			
	*	6,157,843	12/2000	Derango et al.			
		6,177,906	01/2001	Petrus			
	*	6,185,440	02/2001	Barratt et al.			
		6,195,045	02/2001	Xu et al.			
		6,211,671	04/2001	Shattil			
		6,252,548	06/2001	Jeon			
	*	6,252,884	06/2001	Hunter			
	*	6,266,528	07/2001	Farzaneh			
	*	6,295,026	09/2001	Chen et al.			
		6,298,092	10/2001	Heath, Jr.			
		6,307,882	10/2001	Marzetta	1		
		6,317,466	11/2001	Foschini et al.			
		6,327,310	12/2001	Hochwald et al.			

ſ	EXAMINER	DATE CONSIDERED
-		

-		FORM PTO-1449		ATTY. DOCKET NO. COG-2-0979.02.US		SERIAL N 10/800,6	
U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE			APPLICANT Sugar et al.				
		ORMATION DISCLOSURE ATEMENT BY APPLICANT		FILING DATE March 15, 2004		GROUI 2685	D
	(Use	several sheets if necessar	y)				
			U.S. PATENT	DOCUMENTS			
EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE
		6,331,837	12/2001	Shattil			
		6,349,219	02/2002	Hochwald et al.			
		6,351,499	02/2002	Paulraj et al.			
		6,362,781	03/2002	Thomas et al.			
	· · · · · · · · · · · · · · · · · · ·	6,369,758	04/2002	Zhang	-		
		6,370,182	04/2002	Bierly et al.			
<u> </u>		6,377,631	04/2002	Raleigh			
		6,377,636	04/2002	Paulraj et al.			
		6,377,819	04/2002	Gesbert et al.			
		6,400,699	06/2002	Airy et al.			
		6,400,780	06/2002	Rashid-Farrokhi et al.			
		6,442,214	08/2002	Boleskei et al.			
		6,462,709	10/2002	Choi			
		6,463,295	10/2002	Yun			
		6,473,467	10/2002	Wallace et al.			
	*	6,522,898	02/2003	Kohno et al.			
	*	6,549,786	04/2003	Cheung			
	*	6,570,929	05/2003	Eriksson			
		6,584,161	06/2003	Hottinen			
		6,636,568	10/2003	Kadous			
	*	6,646,600	11/2003	Vail et al.			
	*	6,684,064	01/2004	Kazakevich et al.			
		6,687,492	02/2004	Sugar et al.			
		2001/0012764	08/2001	Edwards et al.			
		2001/0015994	08/2001	Nam	1		
		2001/0046255	11/2001	Shattil			

EXAMINER	DATE CONSIDERED

FORM PTO-1449 U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE			ATTY. DOCKET NO. SERIAL NO. 10/800,610 APPLICANT Sugar et al.				
	(Use	several sheets if necessary	()				
			U.S. PATENT	DOCUMENTS			
EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE
		2001/0053143	12/2001	Li et al.			
		2002/0001316	01/2002	Hornsby et al.			
		2002/0024975	02/2002	Hendler			
		2002/0034191	03/2002	Shattil			
		2002/0039884	04/2002	Raynes et al.	-		
		2002/0064246	05/2002	Kelkar et al.			
		2002/0067309	06/2002	Baker et al.			
		2002/0072392	06/2002	Awater et al.			
		2002/0085643	07/2002	Kitchener et al.			
		2002/0102950	08/2002	Gore et al.	-		
		2002/0111142	08/2002	Klimovitch			
		2002/0118781	08/2002	Thomas et al.			
		2002/0122383	09/2002	Wu et al.			
		2002/0122501	09/2002	Awater et al.			
		2002/0127978	09/2002	Khatri			
		2002/0136170	09/2002	Struhsaker			
		2002/0141355	10/2002	Struhsaker et al.			
	*	2002/0147032	10/2002	Yoon et al.			
<u> </u>		2002/0158801	10/2002	Crilly, Jr. et al.			
		2002/0159537	10/2002	Crilly, Jr.			
	*	2002/0172186	11/2002	Larsson	<u> </u>		
		2002/0172269	11/2002	Xu	1		
		2002/0196842	12/2002	Onggosanusi et al.			
		2003/0002450	01/2003	Jalali et al.			
	*	2003/0022693	01/2003	Gerogiokas et al.			
		2003/0032423	02/2003	Boros et al.			
	*	2003/0048761	03/2003	Jarett			

EXAMINER	DATE CONSIDERED

FORM PTO-1449			ATTY. DOCKET NO. COG-2-0979.02.US		SERIAL 1 10/800,6			
U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE				PLICANT par et al.				
		FORMATION DISCLOSURE TATEMENT BY APPLICANT		FILING DATE March 15, 2004		GROUI 2685	Þ	
	(Us	e several sheets if necessary)			,			
			U.S. PATEN	T DOCUMENTS				
EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUBCLASS		DATE IF
		2003/0108117	06/2003	Ketchum et al.				
	*	2003/0114108	06/2003	Frecassetti et al.				
		2003/0125090	07/2003	Zeira				
		2003/0139194	07/2003	Onggosanusi et al.				
	*	2003/0181165	09/2003	Sugar et al.				
		2004/0072546	04/2004	Sugar et al.			·	
		FC	REIGN PATE	ENT DOCUMENTS				
							TRAN	SLATION
		DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUBCLASS	YES	NO
		01/45300	06/2001	WO				
		02/03568	01/2002	WO				
		OTHER DOCUMENTS	(Including Au	uthor, Title, Date, Pertinent Pag	es, Etc.)			
	Iserte et al., "Pre-and Post-Beamforming in MIMO Channels Applied to HIPERLAN/2 and OFDM", IST Summit 2001, IST Mobile Communications Summit, September 2001.				Summit			
	Iserte et al., "Joint Beamforming Strategies in OFDM-MIMO Systems", ICASSP 2002, IEEE International Conference on Acoustics, Speech and Signal Processing, May 2002.							
		Lee et al., "Antenna Diversity for		System in a Fading Channel", F mber 1999, pp. 1104-1109.	roceeding	of IEEE M	ILCON	/ 1999,
		Jakes, "Microwave Mo	obile Commur	nications", Copyright 1974, pp. 3	313-320 an	d pp. 489-	498.	!

EXAMINER	DATE CONSIDERED

FORM PTO-1449			ATTY. DOCKET NO. SERIAL NO. COG-2-0979.02.US 10/800,610				
U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE			APPLICANT Sugar et al.				
		FORMATION DISCLOSURE TATEMENT BY APPLICANT		FILING DATE March 15, 2004		GROUI 2685	9
	(Us	e several sheets if necessary)					
			U.S. PATEN	DOCUMENTS			
EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE
	-						
		OTHER DOCUMENTS	(Including Au	ithor, Title, Date, Pertinent Page	s, Etc.)		
	*	Briesemeister et al., "Role-Based Multicast in Highly Mobile but Sparsely Connect Ad-Hoc Networks"; First Annual Workshop on Mobile Ad Hoc Networking & Computing; pp. 45-50; August 2000.					
		Bablan et al., "Optimum Diversity Combining and Equalization in Digital Data Transmission with Applications to Cellular Mobile Radio-Part II: Numerical Results"; May 1992; IEEE Transactions on Communications, vol. 30, No. 5; pp. 895-907.					
		Brunner et al., "Downlink Beamforming for WCDMA Based on Uplink Channel Parameters"; Proceedings of 3 rd European Personal Mobile Conference (EPMCC '99), March 1999, pp. 375-380.					
		Yeh, "An Analysis of Adaptive Retransmission Arrays in a Fading Environment", The Bell System Technical Journal, October 1970, pp. 1811-1825.					
		Morgan, "Interaction of Adap		Arrays in an Arbitrary Environme al, January 1965, pp. 23-47.	ent", The E	Bell System	n Technical
				n a Measured Indoor Radio Cha ems & Computers, Vol. 1, Octob			

EXAMINER	DATE CONSIDERED

FORM PTO-1449	ATTY. DOCKET NO. COG-2-0979.02.US	SERIAL NO. 10/800,610			
U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE	APPLICANT Sugar et al.				
INFORMATION DISCLOSURE STATEMENT BY APPLICANT	FILING DATE March 15, 2004	GROUP 2685			
(Use several sheets if necessary)					
OTHER DOCUMENTS (Including Au	uthor, Title, Date, Pertinent Page	s, Etc.)			
Aziz et al., "Indoor Throughput and Range I IEEE 802.11a and ETSI HIPERLAN/2", Ve 2001, IEEE		2002, VTC 2001, October 7-11,			
Iserte et al., "Iterative Algorithm for the Estim 11th IEEE Workshop or	nation of Distributed Sources Loc n Statistical Signal Processing, A				
	Vaidyanathan et al., "The Role In Lossless Systems in Modern Digital Signal Processing: A Tutorial", IEEE Transactions on Education, Vol. 32, August 1989, pp. 181-197.				
	Raleigh et al., "Spatio-Temporal Coding for Wireless Communication", IEEE Transactions on Communications, Vol. 46, No. 3, March 1998, pp. 357-366.				
Jungnickel et al., "Performance of a MIMO	Jungnickel et al., "Performance of a MIMO System with Overlay Pilots", IEEE GlobeCom 2001, pp. 594-598.				
"BLAST High-Level Ov	"BLAST High-Level Overview", Lucent Technologies, July 18, 2000.				
	Golden et al., "Detection Algorithm and Initial Laboratory Results Using V-BLAST Space-Time Communicati Architecture", Electronic Letters, January 7, 1999, Vol. 35, No. 1.				
Bell Laboratories, Lucent Technologies, Pr	Golden et al., "V-BLAST: A High Capacity Space-Time Architecture for the Rich-Scattering Wireless Channe Bell Laboratories, Lucent Technologies, Proc. Int'l Symposium on Advanced Radio Technologies, Boulder, CO, September 10, 1998.				
Chizhik et al., "Keyholes, Correlations, and IEEE Transactions on Wireless C					
Junqiang et al., "Spatial Multiuser Access w Septe	ith MIMO Smart Antennas for Of mber 2001, pp. 1553-1557.	FDM Systems", IEEE VTC 2001,			

EXAMINER	DATE CONSIDERED

FORM PTO-1449	ATTY. DOCKET NO. COG-2-0979.02.US	SERIAL NO. 10/800,610	
U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE	APPLICANT Sugar et al.		
INFORMATION DISCLOSURE STATEMENT BY APPLICANT	FILING DATE March 15, 2004	GROUP 2685	
(Use several sheets if necessary)			
OTHER DOCUMENTS (Including A	Author, Title, Date, Pertinent Pages	s, Etc.)	
Jungnickel et al., "A MIMO WLAN Based on Linear Channel Inversion", IEE Seminar-MIMO Communication Systems from Concept TO Implementation, December 2001, pp. 20/1-20/6.			
Stridh et al., "Spatial Characterization of Ir	Stridh et al., "Spatial Characterization of Indoor Radio Channel Measurements at 5 GHz", SAM 2000, March 2000, pp. 58-62.		
	Irmer et al., "MISO Concepts for Frequency-Selective Channels", 2002 International Zurich Seminar on Broadband Communications Access, February 19-21, 2002.		
	Choi et al., "MISO CDMA Transmission with Simplified Receiver for Wireless Communication Handsets", IEEE Transactions on Communications, Vol. 49, No. 5, May 2002.		
Meyer-Ottens, et al. "Downlink Beamforming	Meyer-Ottens, et al. "Downlink Beamforming for W-CDMA Using Feedback and Interference Estimate", March 9, 2001.		
	Yang et al., "On Joint Transmitter and Receive Optimization for Multiple-Input-Multiple-Output (MIMO) Transmission Systems", IEEE Transactions on Communications, Vol. 42, No. 12, December 1994.		
Ivrlac et al., "On Channel Capacity of Correlated MIMO Channels", ITG Fokusprojekt: Mobilkommunikation "Systeme mit Intelligenten Antennen", Ilmenau, 2001.			
Chuah et al., "Capacity of Multi-Antenna	Chuah et al., "Capacity of Multi-Antenna Array Systems in Indoor Wireless Environment", November 1998, IEEE Globecom.		
	Wallace et al., "Experimental Characterization of the MIMO Wireless Channel: Data Acquisition and Analysis", February 27, 2002, Department of Electrical and Computer Engineering, Brigham Young University.		
Love et al., "Equal Gain Transmission in Multiple-Input Multiple-Output Wireless Systems", November 2008 Proceedings of IEEE Globecom, pp. 1124-1128.			

EXAMINER	DATE CONSIDERED

	FORM PTO-1449	ATTY, DOCKET NO.	SERIAL NO.	
	COG-2-0979.02.US	10/800,610		
U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE		APPLICANT Sugar et al.		
INFORMATION DISCLOSURE STATEMENT BY APPLICANT		FILING DATE March 15, 2004	GROUP 2685	
(Use several sheets if necessary)				
OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)				
	Lucent Technologies, "Lucent Technologies: Chips Poised to Bring 'BLAST' Multiple Input/Multiple Output Technology to Laptops, PDAs and Other Mobile Devices", October 16, 2002, lucent.com.			
	"Lucent's 'BLAST' Chips to Take	"Lucent's 'BLAST' Chips to Take Off in Wireless Market", EETimes.com, October 16, 2002.		
		Heath et al., "A Simple Scheme for Transmit Diversity Using Partial Channel Feedback", Signals, Systems & Computers, Conference Record of the Thirty-Second Asilomar Conference, November 1-4, 1998; vol. 2; pp. 1073-1078.		
	Chiu et al., "OFDM Receiver Des	Chiu et al., "OFDM Receiver Design", EE225C, Fall 2000, University of California, Berkeley.		
		Wolniansky et al., "V-BLAST: An Architecture for Realizing Very High Data Rates Over the Rich-Scattering Wireless Channel", Proc. ISSSE-98, Pisa, Italy, September 29, 1998.		
		Sanchez et al., "CSMA/CA Beam Forming Antennas in Multi-hop Packet Radio"; Proc. For Swedish Workshop on Wireless Ad-Hoc Networks, March 5-6, 2001.		

EXAMINER	DATE CONSIDERED	